

HP VISUALIZE *fxe* Graphics Card Installation Guide

HP VISUALIZE Workstations



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1 Introduction

This manual covers the installation of HP VISUALIZE fxe graphics cards into workstations released after September of 1999, including the B180, B1000, B2000, C3000, J5000, and J7000 workstation models.

It describes the basic prerequisites and procedures for installing the HP VISUALIZE *fxe* (HP product number A4982A) graphics card into the supported workstations.

The HP VISUALIZE *fxe* 2D/3D graphics accelerator card is an entry-level graphics card. It installs in a PCI 2X(64 bits wide 33Mhz/66Mhz) slot in an HP-UX workstation backplane. It uses a standard 15-pin miniature D-Sub receptacle connector to connect to a video monitor cable. It supports resolutions of:

Table 1-1.

Type	Resolution	Frequency
1	1280x1024	75Hz VESA
2	1024x768	75Hz VESA
3	1600x1200	75Hz VESA
4	1600x1024	76Hz VESA

See your workstation Owner's Guide for specific installation instructions for your particular workstation.

Related Documentation

For more information, refer to the following related documentation:

- *Owner's Guide* for your workstation
- *Common Desktop Environment User's Guide*
- *HP Visual User Environment User's Guide*
- *Using the X Window System*
- *Graphics Administration Guide*
- <http://www.hp.com/visualize> is the general website for workstation information
- <http://www.software.hp.com> is the software depot website for HP-UX
- <http://www.docs.hp.com> is the website for documents regarding HP-UX systems
- <http://us-support.external.hp.com> is the website for software and firmware patches

Prerequisites

To support the HP VISUALIZE *fxe* graphics card, your workstation must meet the following prerequisites.

- Your workstation must be running one of the following revisions of the HP-UX operating system and have the appropriate Additional Core Enhancement (ACE) software bundle and Workstation Quality Pack installed:
 - HP-UX revision 10.20 with the 9909 ACE software bundle (September 1999)
 - HP-UX revision 11.00 with the 9911 ACE software bundle (November 1999)

To verify that the proper ACE software bundle is installed on your workstation, perform the following steps:

1. At a command prompt, type the following

```
/usr/sbin/swlist -l bundle | grep ACE
```

2. Scan the output for either of the following, as appropriate for your workstation's HP-UX operating system revision:

- The HP-UX 10.20 B6193DA ACE software bundle with the description:

```
Workstation ACE for HP-UX 10.20 (September 1999)
```

This line indicates that the September 1999 ACE software bundle is installed.

- The HP-UX 11.00 B3782FA ACE software bundle with the description

```
Workstation ACE for HP-UX 11.00 (November 1999)
```

This line indicates that the November 1999 ACE software bundle is installed

NOTE Because the ACE software bundles are updated occasionally, the ACE revision date that is listed in the output may be later than the one shown above. For example, if the ACE revision date listed for HP-UX 10.20 is later than September 1999, then the proper ACE software bundle is installed on your workstation.

If your workstation is not running HP-UX revision 10.20 or 11.0 with the appropriate

ACE software bundle, you need to update your operating system software before installing your graphics card. Contact your designated service representative for information on receiving an update. The ACE software bundles and Quality Packs are also available for downloading from the <http://software.hp.com> website. The bundles will require approximately 133 Mb of disk space.

Your workstation must have either an HP-supported monitor running at 75 Hz with a 1280 X 1024 resolution, or a full multi-mode color monitor. Monitors with Enhanced Video Connector (EVC), D-Sub connector, or 5 BNC connectors (RGB, vertical sync, horizontal sync) will work.

The HP VISUALIZE *fxe* graphics card will not function with older HP monitor types that use a sync on green signal. This includes monitors such as the HP 1097A/B/ C/D, A2088A, and A2828A/B which only have 3 RGB connectors.

See your workstation *Owner's Guide* for information on using the `/opt/graphics/common/bin/setmon` command to produce a list of supported monitors for your workstation, such as the following sample list:

Table 1-2. HP VISUALIZE *fxe* Supported Monitors

Type	Resolution	Frequency
1	1280x1024	75Hz VESA
2	1024x768	75Hz VESA
3	1600x1200	75Hz VESA
4	1600x1024	76Hz VESA

NOTE Your list of monitors may differ from the list shown above, depending on your workstation's setup.

You may also need the following adapter to connect your graphics card's D-Sub connector to an Enhanced Video Connector (EVC) monitor's receptacle connection:

Table 1-3. EVC Adapter

Product Number	Description
HP A4167A	EVC receptacle to 15-pin Miniature D-Sub Plug Adapter

Making Software and Device-Specific Changes

System Configuration

For important information on configuring your system for your HP VISUALIZE *fxe* graphics card, refer to your workstation *Owner's Guide* and your HP-UX documentation. If you are installing a multiple-display system and you will be using the Common Desktop Environment (CDE), refer to the *Common Desktop Environment User's Guide* for important configuration information. If you will be using HP VUE instead, refer to the HP *Visual User Environment User's Guide*.

Special Considerations

To ensure that your workstation has the most up-to-date core operating system software, it is recommended that the most recent release of the Additional Core Enhancement (ACE) software bundle be installed. In addition, if your applications are based on HP's implementation of OpenGL runtime libraries, it is highly recommended that you update your HP implementation of the OpenGL runtime libraries from the September 1999 (or later) application release, or from the Hewlett-Packard web-site.

If you do not have the CD-ROMs that contain the latest release of ACE and the Quality Pack or HP's implementation of the OpenGL runtime libraries, you can download them from the Hewlett-Packard website at this URL:

<http://www.software.hp.com/>

For information on installing ACE and HP's implementation of the OpenGL runtime libraries, read the documents provided with those products.

Steps for Making Software Changes

Each step is described below.

1. Read this Entire Document

Read all of this document. It contains information for product installation.

2. Check the Available File System Space

Before installing this product, make sure there is enough available space in your file system in `/opt/graphics`. Your workstation needs at least 133 MB of available disk space for all filesets and patches.

3. Install the Latest Version of the Workstation ACE Software Bundle

To install the ACE software bundle, execute the following command as root

```
/usr/sbin/swinstall
```

Choose the ACE software bundle and select **Match What Target Has** in the **Actions** menu. Follow the standard procedure to load that software.

4. Install the Latest Version of the Workstation Software Quality Pack

To install the Workstation Quality Pack, execute the following command as root:

```
/usr/sbin/swinstall
```

Choose the Quality Pack bundle and select **Match What Target Has** in the **Actions** menu. Follow the standard procedure to load that software.

5. Install 3D Graphics APIs

If you are using or planning to use any of the following 3D Graphics Application Programming Interface (API) products, you must install what you need from the HP-UX Developer's CD.

- Starbase Developer's Kit
- HP PEX lib Developer's Kit
- OpenGL Developer's Kit

The OpenGL runtime libraries are available from the latest DART Release or by searching for OpenGL at the <http://www.software.hp.com> website

To determine whether these products are properly installed, try compiling and running an application on your system that uses one of the above APIs.

- Check: `/var/adm/sw/swinstall.log`

Once you have completed the installation process, look at the contents of the file `/var/adm/sw/swinstall.log`. This file identifies the filesets loaded, identifies the customize scripts that ran during the installation process, and includes informative messages. Error messages that resulted from attempts to write across an NFS mount point will appear in this file and may be ignored.

6. Verify that the Software Installation is Complete

An easy way to verify that your installation is complete is to compile, link, and run one of your existing Application Programming Interface (API) programs (that is,

programs created using HP's implementation of OpenGL, Starbase, or HP PEX). If you do not have an existing program, then make sure that you install the demonstration filesets that come with your API. When these filesets have been properly installed by you or your system administrator, one or more of the following demo directories will be created:

- /opt/graphics/OpenGL/demos
- /opt/graphics/PEX5/demos
- /opt/graphics/Starbase/demos

You can run any of the texture-mapping programs in these directories to verify that the installation is complete.

Installing the Hardware

NOTE Before you install an HP VISUALIZE *fxe* graphics card, you must read the *Graphics Administration Guide* and workstation *Owner's Guide* for important system configuration information.

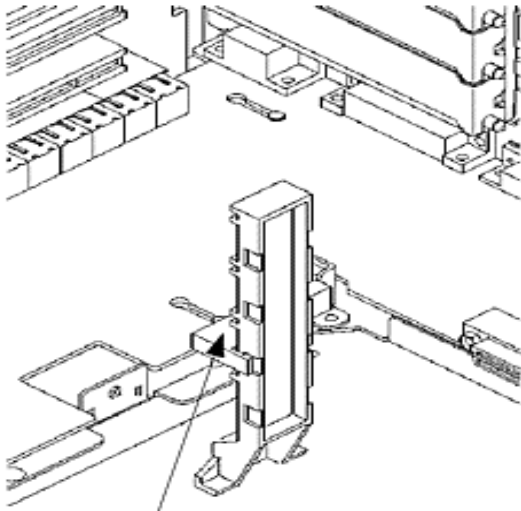
CAUTION Unplug the AC power cord from the workstation before opening the cabinet and performing any installation inside the workstation.

CAUTION Graphics cards are susceptible to electrostatic shock. When handling your graphics card, always wear a properly grounded wrist strap and handle the card carefully.

To install the HP VISUALIZE *fxe* graphics card hardware, do the following

1. Power off the workstation and unplug the AC power cord from the workstation.
2. Follow the instructions in your workstation *Owner's Guide* to open the workstation's cabinet.
3. Follow the instructions in your workstation *Owner's Guide* to install the graphics card in the appropriate PCI slot. To determine which is the appropriate PCI slot, see the following subsection, "Supported Graphics Slot Configurations." Ensure that you align the Bulkhead Pin, Board Connector, and Board Guide Extender when installing the graphics card in the PCI slot.

Note that you will need to have a PCI Extension Clip attached to the corresponding slot on the PCI Retainer for an HP VISUALIZE *fxe* graphics card. The location of the PCI Extension Clip is shown in Figure 1 on the next page. The PCI Extension Clip will bridge the gap between the graphics card and the PCI Retainer.



PCI Extension Clip

4. Follow the instructions in your workstation *Owner's Guide* to reinstall the workstation's cabinet.
5. Refer to your workstation *Owner's Guide* for important information on defining the boot console and monitor type. Note that you must do this step before powering on your workstation.
6. Plug the AC power cord into the workstation and power on the workstation.
7. Refer to your workstation *Owner's Guide* for instructions on using the HP-UX System Administration Manager (SAM) utility to verify your graphics configuration.

Supported Graphics Slot Configurations

The following four figures show the supported graphics slot configurations for the workstation models that support the HP VISUALIZE *fxe* graphics card. Refer to the appropriate figure for your particular workstation model.

B180 Graphics Slots

PCI slot 1 32 bits wide/33Mhz

PCI slot 2 32 bits wide/33Mhz

Supported B180 Configurations:

- 1 built-in Visualize EG and Visualize *fxe*
- 1 built-in Visualize EG and Visualize *fx2*
- 1 built-in Visualize EG and Visualize *fx4*

B1000 and C3000 Graphics Slots

PCI slot 1 64 bits wide/33Mhz

PCI slot 2 64 bits wide/66Mhz - Primary Graphics Slot

PCI slot 3 64 bits wide/33 Mhz

PCI slot 4 64 bits wide/33Mhz - Secondary Graphics Slot

PCI slot 5 32 bits wide/33Mhz

PCI slot 6 32 bits wide/33Mhz

Use the Primary Graphics Slot for the highest performance graphics card. Use the Secondary Graphics Slot for the second graphics card and then the remaining 64 bit wide slots for any additional supported graphics cards.

Supported B1000 and C3000 Graphics Configurations:

- 4 Visualize EG cards or
- 4 Visualize *fxe* or
- 1 Visualize *fx2* or
- 1 Visualize *fx4* with texture Mapping

B2000 Graphics Slots

PCI slot 1 64 bits wide/33Mhz - Secondary Graphics Slot

PCI slot 2 64 bits wide/33Mhz - Tertiary Graphics Slot

PCI slot 3 32 bits wide/33Mhz

PCI slot 4 32bits wide/33MHz

Use the Secondary Graphics Slot for the highest performance graphics card. Use the Tertiary Graphics Slot for the second graphics card and then any of the remaining 32 bit slots for the third PCI graphics card.

Supported B2000 Graphics Configurations:

- 3 Visualize *fxe* and built-in Visualize *fxe*
- 1 Visualize *fx4* with Texture Mapping and built-in Visualize *fxe*

J5000 and J7000 Graphics Slots

PCI slot 1 64 bits wide/33Mhz

PCI slot 2 64 bits wide/33Mhz - Tertiary Graphics Slot

PCI slot 3 64 bits wide/33Mhz

PCI slot 4 64 bits wide/66Mhz - Secondary Graphics Slot

PCI slot 5 64 bits wide/33Mhz

PCI slot 6 64 bits wide/33Mhz

PCI slot 7 64 bits wide/66Mhz - Primary Graphics Slot

PCI slot 8 64 bits wide/33Mhz

Use the Primary Graphics Slot for the highest performance graphics card. Use the Secondary Graphics Slot for the second graphics card and then the remaining slots for any additional supported graphics card. **Do not use Slot 1 for any other I/O card except as a source of power only.**

Supported J5000 and J7000 Graphics Configurations:

- 4 Visualize EG's or
- 4 Visualize *fxe* or
- 1 Visualize *fx2* or
- 1 Visualize *fx6* with Texture Mapping or
- 2 Visualize *fx6* with texture mapping or
- 3 Visualize *fx6* without Texture Mapping

Fixing Common Installation Problems

This section describes how to fix some common problems you may encounter while installing the HP VISUALIZE *fxe* graphics card.

Note that there are several system utilities that you can use to display or set the graphics configuration for your workstation:

- `/opt/graphics/common/bin/graphinfo` allows you to display the current graphics configuration and the graphics drivers that are being used.
- `opt/graphics/common/bin/setmon` allows you to reconfigure the monitor type.
- The Display menu of the HP-UX System Administration Manager (SAM) utility allows you to configure the X-server and set the monitor type

Monitor Does Not Display

NOTE Older monitors that have only 3 RGB connectors will not function with the HP VISUALIZE *fxe* graphics card because these monitors have no sync input except by sync on green. For more information, see the “Prerequisites” section earlier in this manual.

If the monitor is not displaying on powering up, the system console may not yet recognize the new graphics card. Perform the following steps to reconfigure the system console so that it recognizes the new card:

1. Force the system to set the default console to a serial terminal on com1 by disconnecting the keyboard from the system and recycling power.
2. Interrupt the boot up sequence and wait until the Boot Console Handler prompt is displayed, then move to the configuration menu by typing `co`.
3. Display what graphics cards the system console recognizes by typing:
`mo graphics list`
4. Select the monitor type by typing:
`mo graphics(N) # type`

where N = card slot, and # = monitor type

5. Set the console path to the graphics card by typing:

```
pa co graphics(N)
```

6. Reconnect the keyboard to the system and cycle the system's power. The system console should now display.

System's X-server or CDE Does Not Come Up or Recognize the Graphics Card

If the system's X-server or CDE will not come up or recognize the new graphics card, the

HP-UX device files may not yet be set up. If you added a new graphics card or moved a current one to a new slot location, you may need to reconfigure some device files. Follow these steps in order for HP-UX to recognize the new graphics card or new card location:

1. Place the new card in the new slot location and boot to HP-UX. It will not boot into CDE or HP VUE, but it will allow you to login at the command line level as root.
2. Delete the old device files by typing:

```
rm /dev/crt*
```

3. Create the new device files by typing:

```
insf -ev
```

4. Finish booting to CDE or HP VUE by typing:

```
init 3
```

Introduction

Fixing Common Installation Problems

A Regulatory Information

FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Operation of this device is subject to the following conditions:

- This device may not cause harmful interference.
- This device must accept interference received, including interference that may cause undesired operation
- Cables used with this device must be properly shielded to comply with the requirement of the FCC.

WARNING **You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.**

VCCI

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Declaration of Conformity

according to ISO/IEC Guide 22 and EN 45014

Manufacturer: Hewlett-Packard Company

3404 East Harmony Road

Fort Collins, CO 80528

USA

Declares that the:

Product Name: HP VISUALIZE *fxe* Graphics Card

Model Number: A4982A

Product Cards: all

conforms to the following specifications:

Safety IEC 950:1991+A1+A2+A3+A4 / EN 60950:1992+A1+A2+A3+A4

EMC CISPR 22: 1995 / EN 55022: 1998 Class B

EN 50082-1:1992

IEC 1000-4-2: 1995 / EN 61000-4-2: 1995 - 4kV CD, 8 kV AD

IEC 1000-4-3: 1995 / EN 61000-4-3: 1996 - 10 v/m

IEC 1000-4-4: 1995 / EN 61000-4-4: 1995 - 2 kV Signal,
4 kV Power Lines

US FCC Part 15, Level B

Japan VCCI, Class B

and is certified by: HP FC HTC TCOM report #99-40ES-021-I

TUV Certified to EN60950, Certificate # AL990824148018

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Supplementary information:

The product herewith complies with the requirements of the following Directives and carries the CE marking accordingly:

- the EMC directive 89/336/EEC and 92/31/EEC and 93/68/EEC

- the Low Voltage Directive 73/23/EEC and 93/68/EEC

This product was tested in a typical Hewlett Packard workstation configuration.

Original signed copy available on file:

Ruth Lutes, Site Quality Manager Fort Collins, CO, USA

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